

CLAIMS

1. An optical system (10, 40) for observing multiple objects (33, 34; 61, 63) situated distal from one another, having a camera unit (11, 42) comprising a first prism unit (13, 43), which is situated on the optical axis (12, 41) and/or in the beam path (15, 47) of the camera unit, for producing two partial beam paths (18, 19; 48, 49), as well as two object prism units (20, 21; 51, 52), each of which is situated in a partial beam path and assigned to an object.
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2. The optical system according to Claim 1,
characterized in that
an illumination unit (29, 30; 57, 58) is assigned to each object prism unit (20, 21; 51, 52).
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3. The optical system according to Claim 2,
characterized in that
the illumination units (29, 30; 57, 58) are implemented as light-emitting semiconductor components.
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4. The optical system according to Claim 3,
characterized in that
the illumination units are implemented as light-emitting diodes.
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5. The optical system according to one of the preceding claims,
characterized in that
the output beam paths (22, 23) of the object prism units (20, 21) run transversely to and in the same direction as the optical axis (12) of the camera unit (11).
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6. The optical system according to Claim 5,
characterized in that

illumination beam paths (31, 32) implemented between the object prism units (20, 21) and the illumination units (29, 30) run transversely to the optical axis (12) of the camera unit (11).

5 7. The optical system according to Claim 5,
characterized in that
the prism unit (13) has two optical boundary faces (16, 17), which
are situated perpendicular to one another and are each angled at
45° to the optical axis (12) of the camera unit (11).

10 8. The optical system according to one of Claims 5 to 7,
characterized in that
the object prism units (20, 21) may have their distance changed.

15 9. The optical system according to one of Claims 5 to 8,
characterized in that
the illumination units (29, 30) may have their distance changed
together with the object prism units (20, 21).

20 10. The optical system according to one of Claims 1 through 4,
characterized in that
the output beam paths (48, 49) of the object prism units (51, 52)
run transversely and in the opposite direction to the optical axis
(41) of the camera unit (42).

25 11. The optical system according to Claim 11,
characterized in that
the illumination beam paths (59, 60) implemented between the
object prism units (51, 52) and the illumination units (57, 58) run
parallel to the optical axis (41) of the camera unit (42).

30 12. The optical system according to Claim 11,

characterized in that

the prism unit (43) has a first optical boundary face (45), which on the optical axis (41) of the camera unit (42) reflects a first partial beam path (48) in the direction of the first object (61) and is transparent to a second beam path (49), and which is angled by 45° to the optical axis, a second optical boundary face (50) situated perpendicular to the optical axis being positioned downstream from said first optical boundary face for reflecting the second partial beam path toward the first optical boundary face and reflecting the second partial beam path in the direction of the second object (63).